

SINGLE-IMPACT FICHE

SOIL AMENDMENT WITH LIME OR GYPSUM

IMPACT: SOIL BIOLOGICAL QUALITY

Data extracted in April 2021

Note to the reader: This fiche summarises the impact of soil amendment with lime or gypsum application on SOIL BIOLOGICAL QUALITY. It is based on 1 peer-reviewed synthesis research paper¹ including 19 individual studies.

1. WEIGHT OF THE EVIDENCE

- CONSISTENCY OF THE IMPACT:

Soil amendment with gypsum, compared to no amendment, showed a positive effect on soil biological quality in the only synthesis paper reviewed. No results were available for liming (see **Table 1**).

The reviewed synthesis paper did not include data collected in Europe (it was focused on China).

Table 1. Summary of effects. The numbers between parenthesis indicate the number of synthesis papers with a quality score of at least 50%. Details on quality criteria can be found in the next section.

Impact	Intervention	Control	Positive	Negative	No effect	Uncertain
Improve soil biological quality	Gypsum	No gypsum	1 (1)	0	0	0

- QUALITY OF THE SYNTHESIS PAPERS: *The quality score summarises 16 criteria assessing the quality of three main aspects of the synthesis papers: 1) the literature search strategy and studies selection; 2) the statistical analysis; 3) the potential bias. Details on quality criteria can be found in the methodology section of this WIKI.*

2. IMPACTS

The main characteristics and results of the synthesis paper are summarized in **Table 2**. Summaries of the meta-analyses provide fuller information about the results reported in each synthesis paper, in particular about the modulation of effects by factors related to soil, climate and management practices.

Table 2. Main characteristics of the synthesis paper reporting impacts of soil amendment with lime or gypsum on soil biological quality.

Reference	Population	Geographical scale	Num. papers	Intervention	Comparator	Metric	Conclusion	Quality score
Wang Y, Wang Z, Liang F, Jing X, Feng W 2021	Saline-sodic soil types	China	59	Soil amendment with flue gas desulfurization gypsum (FGDG)	No amendment control under identical experimental conditions	Soil bacteria, fungi, actinomycetes	Soil amendment with flue gas desulfurization gypsum significantly increased the numbers	62%

¹ Research synthesis papers include a formal meta-analysis or systematic reviews with some quantitative results. Details can be found in the methodology section of the WIKI.

Reference	Population	Geographical scale	Num. papers	Intervention	Comparator	Metric	Conclusion	Quality score
							of soil bacteria, fungi, and actinomycetes.	

3. KNOWLEDGE GAPS

The authors did not report knowledge gaps in the reviewed synthesis papers.